From Barley—More Heart Benefits

Til recently, oats have been mostly for horses and barley mainly for beer drinkers. All that's changing now.

Agricultural Research Service scientists in Madison, Wisconsin, have been among the first to study and report the cholesterol-lowering effects of barley.

Tocotrienol—a natural component of barley that inhibits the body's production of cholesterol—was identified by ARS chemist Warren C. Burger (now retired) and University of Wisconsin researchers Charles E. Elson and Asaf A. Qureshi.

Tocotrienols are found in layers of the barley kernel and also in oat bran. Studies done over the past decade by Qureshi and colleagues confirmed that these compounds in barley and oats lowered cholesterol in chickens and pigs. [See "Grains Hold the Key to Reducing Blood Cholesterol," *Agricultural Research,* January 1985, pp. 10-11.]

David M. Peterson, a plant physiologist who heads the ARS Cereal Crops Research Unit in Madison, says that "typically, when barley is processed for human food or when it's malted and brewed for beer, the valuable stuff—the tocotrienols—are removed and left in the byproducts."

Oats have enjoyed the public limelight because of the cholesterol-lowering effect of their beta glucans, or soluble dietary fiber.

Oatrim, a fat replacement made from oats, was developed by George E. Inglett at the National Center for Agricultural Utilization Research in Peoria, Illinois. It contains significant quantities of soluble beta glucans and has been used in several commercially available products.

Although consumers won't see Oatrim on the label, they might note a generic listing of "hydrolyzed oat flour," "hydrolyzed oat and corn flour," or "modified oat flour."

But barley isn't widely accepted as a food by consumers. About 40 percent of the barley grown in the United States goes into making alcoholic drinks. Most of the remainder is used as livestock feed.

Inglett and ARS chemist Y. Victor Wu in Peoria envision more barley being incorporated into food products. That's because barley is loaded with beta glucans.

To further make barley-based foods more attractive for the food industry, Wu and Inglett found an inexpensive way of using air to separate barley flour, making portions enriched with soluble dietary fiber. If this process were to be adopted commercially, health-conscious consumers could see more baked goods made with barley and oats.

Peterson told the American Association of Cereal Chemists in San Antonio, Texas, last November that barley is becoming more attractive as a human food because researchers have discovered the cholesterol-lowering compounds in the brewers' spent grains. The nutritional value of a variety of foods could be increased by the use of these tocotrienol-enriched byproducts as a food ingredient.—By **Linda Cooke,** ARS.

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Barley. (K3936-17)